Oct. 18, 1927. 1,645,695

T. W. W. FORREST

METHOD OF DRYING BERRIES ESPECIALLY THOMPSON SEEDLESS RAISINS

Filed July 13, 1926

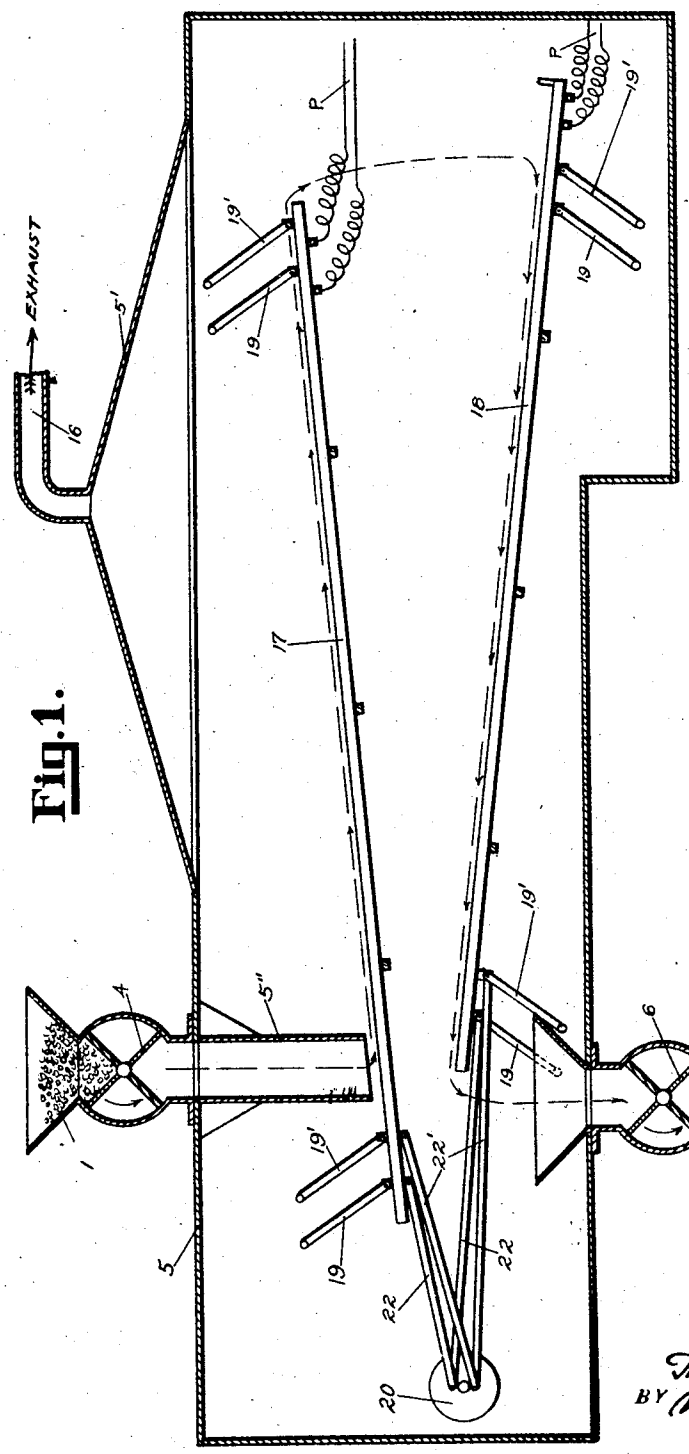


Fig. 1.

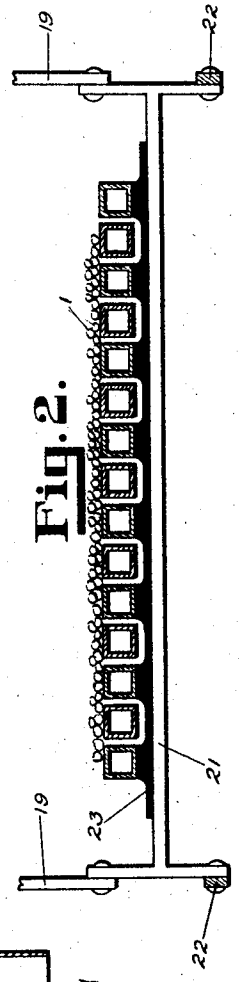


Fig. 2.

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Patented Oct. 18, 1927. 1,645,695

UNITED STATES PATENT OFFICE.

THOMAS W. W. FORREST, OF FRESNO, CALIFORNIA, ASSIGNOR TO SUN-MAID RAISIN GROWERS OF CALIFORNIA, OF FRESNO, CALIFORNIA, A COOPERATIVE ASSOCIATION OF CALIFORNIA.

METHOD OF DRYING BERRIES ESPECIALLY THOMPSON SEEDLESS RAISINS.

Application filed July 13, 1926. Serial No. 122,081.

The invention relates to a method of drying berries forming a divisible part of my copending application for patent filed simultaneously herewith under Serial Number 122,083 covering the processing of dried berries, as the herein described and specially claimed portion of the process may have valuable application apart from the process described in said application and other methods of drying may be substituted for it in said application.

The objects of the process are to provide a method of effectively heat drying berries, especially Thompson seedless raisins which have previously been treated to moisture, and to carry this drying out at a relatively high temperature yet without scorching of the product.

Agitating heating methods of drying raisins have been practiced heretofore, but the methods while successful with the larger raisins such as muscats have not operated properly on very small soft raisins such as the Thompson seedless or Sultanas as the very small bodies of these raisins and their extremely soft nature when moist, especially when hot and moist, makes them prone to agglutinate or melt and stick to hot metallic apparatus heretofore employed.

I have overcome the difficulty by the adoption of a new principle of agitation which comprises rolling the raisin berries rather than by slidably agitating the berries while subjecting them to contact with hot metal, and whereby a new portion of the berry is constantly presented to the heated metal as the same rolls along.

In the drawing hereto the showing is somewhat diagrammatic since a copending application simutaneously filed herewith under Serial Number 122,083 claims the apparatus and describes it more fully, whereas the present application relates to the process only and which may be carried out by other or modified apparatus.

The drawing represents in Figure 1 a vertical section through the apparatus, and in Figure 2 an enlarged cross section of the shaking grill.

In the appartus 5 is a suitable casing having an exhaust hood 5′ topped by an exhaust pipe 16, to which a mild suction is applied by any desired means.

Within the casing are any number of superimposed slanted shaker tables as at 17 and 18 and suitably supported for rocking on links 19, 19′ and each actuated by an eccentric or crank 20 from any desired form of driving means not shown.

The shaker tables slant in reverse direction as indicated and are so arranged that berries delivered to the lower ends of the tables will crawl upward by a rolling action for discharge over the highest ends of the tables so that the highest end of one table discharge to the lowest end of the table below as indicated by the arrows from the source of delivery of the berries 1 through the supply chute 5″.

This action of uphill rolling is caused by the angular relation of the suspension links 19 and amount of oscillation given the tables as well as being influenced by the speed of the same.

When several superimposed shaker tables are used the speed or throw or angularity of the links of each table successively is a trifle greater than the table next above, so that each table will have a capacity slightly in excess of the table discharging to it.

The tables are made of longitudinal parallel metal bars in the form of a grill set so close that the berries to be treated will not fall through, and provision is made for heating the grill by means of electric current from the wires P so as to bring them to a temperature of approximately 750° F.

The lowermost grill discharges into a rotary gate 6 operated by any desired means not shown, so as to eject the treated product while preventing the ingress of air.

In actual construction the grill tables are made of parallel bars or tubes and form in effect two grills one within the other, since every other bar is secured to supporting means 21 suspended or supported on links 19 and shaken by rods 22 from the eccentric, while the other set of bars is similarly supported and hung on another set of links 19′ and shaken by rods 22′ from another point in the eccentric or opposite throw of the crank so that a peculiar motion of the interlaced grills results in some of the berries 1 being rolled against the oppositely moving bars, and other berries getting a similar motion from those berries (see Fig. 2) all while advancing upward on the grill. The exact action of the bars and motion of the raisin

berries is hard to define, but since raisins are not round bodies, but have flattened sides and are sticky (especially when heat is applied) it is thought that the effect of the oppositely moving bars turns the raisins over due to slight adherence of the bodies to two oppositely moving surfaces, or some of the raisins to two oppositely moving raisins, tho since both grills are suspended on angularly arranged links the movement of the raisins as a whole is as stated upward and with a rolling action.

In practice one only of the interlaced grills is heated as it makes for simpler electrical construction, and the other of the pair of grills becomes hot by radiation from the heated one.

The grills may be of any capacity, length or number desired depending on the nature and condition of the berries delivered to the apparatus, a simple passage of the same over the intensely heated grill under the rolling conditions mentioned will effect a perfect drying of the product in a few minutes and without any scorching, melting, or agglutinating of the mass.

I claim:

1. The method of heat drying raisins which comprises rolling them along a heated metal grill.

2. The method of heat drying raisins which comprises rolling them along an upwardly slanted heated grill and discharging them from the upper end thereof.

3. The method of heat drying raisins which comprises rolling them along a metal grill heated to about 750° F.

4. In the processing of raisins, the step of rolling the berries upward on an inclined grill for discharge from the upper end thereof.

5. The method of drying berries which comprises rolling the berries between oppositely moving surfaces and at the same time in one general direction along said surfaces.

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